

Office Action Summary

Application No.

09/595,778

Applicant(s)

GRIMBERGEN ET AL

Examiner

Allan W. Olsen

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12-22, 24 and 25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9 is/are allowed.
- 6) ☒ Claim(s) 10, 13-18, 20, 21, 24 and 25 is/are rejected.
- 7) ☒ Claim(s) 12, 19 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 24 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention as claims 24 and 25 are dependent upon a cancelled claim, claim 23.

Claim --Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 10, 13-18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,472,508 issued to Saxena.

Saxena teaches method of plasma processing a substrate. The method include inductively coupling RF energy to plasma gases after the RF energy passes through the ceiling of the apparatus, wherein the ceiling is considered to be a domed ceiling that includes all portions of the chamber that lie above port 15. Saxena teaches monitoring the plasma by using a spectrophotometer (18) to detect radiation from directly above the substrate after the radiation propagates through a window (17). The substrate processing method of Saxena includes using an apparatus with an antenna that is

Art Unit: 1763

positioned over a portion of the ceiling. The antenna is used to inductively couple RF energy into the apparatus thereby exciting the gases within the chamber into a plasma.

See figure 1 and column 4, line 66 - column 5, line 5

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saxena in view of U.S. Patent 4,953,982 issued to Ebbing et al. (hereinafter, Ebbing).

Saxena teaches limitations of claim 21 as noted in the above 102 rejection.

Saxena does not teach enclosing the monitoring apparatus within a second enclosure.

Ebbing teaches a substrate monitoring system that is enclosed within a second enclosure (column 9, lines 5-7).

It would have been obvious to one skilled in the art to enclose the monitoring system of Saxena because Ebbing teaches that this protects the delicate optics and eliminates sources of noise, thereby increasing the signal to noise ratio.

Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saxena and Ebbing as applied to claim 21 above and further in view of U.S. Patent 5,691,540 issued to Halle et al. (hereinafter, Halle).

Saxena/Ebbing does not teach that the spectrophotometer includes a bifurcated optical cable with end being connected to the signal source and one end being connected to the signal detector.

Halle teaches a plasma process monitoring apparatus that includes a collimating lens and a bifurcated optical cable with one end being connected to the signal source and one end being connected to the signal detector. See: abstract; figure 1; column 2, lines 11-33 column 3, lines 2-11 and 39-40.

The above noted limitations that Saxena/Ebbing fail to teach are apparatus limitations that are recited within method claims. Apparatus limitations, unless they affect the process in a manipulative sense, are afforded little weight in process claims¹. Nevertheless, it would be obvious to one skilled in the art to incorporate the apparatus of Halle into the method of Saxena/Ebbing because it the optics that Halle uses to provide and collect spectroscopic electromagnetic radiation are recognized as being equivalent to alternative methods of providing and collecting electromagnetic radiation for the purpose of spectroscopic analysis. Furthermore, Halle teaches that the assembly is compact and inexpensive and the design provides significant advantages, such as, the ability to measure the trench depth of features with a lateral dimension of less than 0.5 μm .

¹. *In re Tarczy-Hornoch* 158 USPQ 141, 150 (CCPA 1968); *In re Edwards* 128 USPQ 387 (CCPA 1961); *Stalego v. Heymes* 120 USPQ 473, 478 (CCPA 1959); *Ex parte Hart* 117 USPQ 193 (PO BdPatApp 1957); *In re Freeman* 44 USPQ 116 (CCPA 1940); *In re Sweeney* 72 USPQ 501 CCPA 1947).

Allowable Subject Matter

Claims 1-9 are allowed.

Claims 12, 19 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 703-306-9075.

Art Unit: 1763

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Mills, can be reached on 703-308-1633.

The examiner's Right-Fax (direct to desktop) phone number is 703-872-9684. Alternatively, the general fax numbers for TC1700 are 703-872-9310 (non-after finals) and 703-872-9311(after-final).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Allan Olsen, Ph.D.
November 27, 2002